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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/034,304	12/28/2001	Marcia Reid Martin	2001-056-SFT	9762

7590 07/12/2005

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EXAMINER	
BONURA, TIMOTHY M	
ART UNIT	**PAPER NUMBER**
2114	

DATE MAILED: 07/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/034,304	MARTIN ET AL.	
	Examiner	Art Unit	
	Tim Bonura	2114	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 April 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-64* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,13-23,34-44 and 55-63* is/are rejected.

7)☒ Claim(s) *3-12,24-33 and 45-54* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *28 December 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

NADEEM IQBAL
PRIMARY EXAMINER

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-2, 13-23, 34-44, and 55-63 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koseki, et al, U.S. Patent Number 6,732,124 and further in view of Bridge, Jr. et al, U.S. Patent Number 6,678,704.

1. Regarding claim 1:

a. Regarding the limitation of "recording a plurality of write commands a forward journal," Koseki discloses a system with the ability of storing a plurality of metadata objects describing files. (Lines 14-16 of Column 5).

b. Regarding the limitation of "correlating the virtual recovery mapping object with the plurality of backward moves so the virtual recovery mapping object maps logical addresses to corresponding backward moves from the plurality backward moves," Koseki discloses a system with the ability of log buffer which stores the log records collected by the log collection unit and a log writing unit which transfers the log records from the log buffer to the log volume. (Lines 38-41 of Column 5).

c. Regarding the limitation of "generating a virtual recovery mapping object form the plurality of write commands, wherein the virtual recovery mapping object maps logical addresses into physical storage addresses," Koseki discloses a system with the

ability of a log volume which is created to store log records describing updates made to the metadata. (Lines 17-19 of Column 5). Koseki does not disclose that the store log records map logical address to physical address. Bridge discloses a system with records that are associated with checkpoint values. A check point value is changed when a particular records is written into memory location. (Lines 45-60 of Column 5). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the art of Bridge with the art of Koseki. One would have been motivated to combine the arts because Koseki discloses the use of a log records stored in log buffers that describe updates to the computers files. Koseki however fails to disclose that the log records store the addresses of a metadata within the log buffers. (Lines 18-26 of Column 8). Bridge has the ability to keep track of the memory locations via the checkpoint value. (43-53 of Column 10)

d. Regarding the limitation of "generating a plurality of backward moves from the write commands, wherein the backward moves correspond to reverse changes that reverse the effect of the plurality of write commands," Bridge discloses a system wherein a checkpoint value is determined by calculating the maximum number of records that should be processed after the failure, the number of records denotes the desired number of data blocks that will be redone during the recovery. (Lines 1-6 of Column 6).

2. Regarding claim 2, Koseki discloses metadata that are data about data that are stored in prescribed portions of memory. The metadata is logged so as to know which data is the updated valid data. (Lines 20-32 of Column 7, Lines 41-47 of Column 9).

3. Regarding claim 13, Koseki discloses metadata that can be stored in circular buffer. (Lines 47-52 of Column 7).

4. Regarding claim 14, Koseki discloses a system that can repair a file system by log records with the metadata that discloses the updates to the system. (Lines 62-67 of Column 7).

5. Regarding claim 15, Koseki discloses a system that can repair a file system by log records with the metadata that discloses the updates to the system. (Lines 62-67 of Column 7).

6. Regarding claim 16, Koseki discloses a system wherein the log can be come filled and updates and be applied. (Lines 47-60 of Column 7).

7. Regarding claim 17, Koseki discloses a system wherein the index number can be set to zero. (Lines 3-10 of Column 9).

8. Regarding claim 18, Koseki discloses a system wherein the index number is larger than the memory can handle. (Lines 3-10 of Column 9).

9. Regarding claim 19, Koseki discloses a system that can handle multiple concurrent transactions to update metadata. (Lines 32-38 of Column 12).

10. Regarding claim 20, Koseki discloses a system that can generate a plurality of metadata objects. (Lines 21-25 of Column 12).

11. Regarding claim 21, Koseki discloses a system can update a plurality of log buffers. (Lines 21-25 of Column 12).

12. Regarding claim 22:

e. Regarding the limitation of "recording a plurality of write commands a forward journal," Koseki discloses a system with the ability of storing a plurality of metadata objects describing files. (Lines 14-16 of Column 5).

f. Regarding the limitation of "correlating the virtual recovery mapping object with the plurality of backward moves so the virtual recovery mapping object maps logical addresses to corresponding backward moves from the plurality backward moves," Koseki discloses a system with the ability of log buffer which stores the log records collected by the log collection unit and a log writing unit which transfers the log records from the log buffer to the log volume. (Lines 38-41 of Column 5).

g. Regarding the limitation of "generating a virtual recovery mapping object from the plurality of write commands, wherein the virtual recovery mapping object maps logical addresses into physical storage addresses," Koseki discloses a system with the ability of a log volume which is created to store log records describing updates made to the metadata. (Lines 17-19 of Column 5). Koseki does not disclose that the store log records map logical address to physical address. Bridge discloses a system with records that are associated with checkpoint values. A check point value is changed when a particular records is written into memory location. (Lines 45-60 of Column 5). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the art of Bridge with the art of Koseki. One would have been motivated to combine the arts because Koseki discloses the use of a log records stored in log buffers that describe updates to the computers files. Koseki however fails to disclose that the log records store the addresses of a metadata within the log buffers. (Lines 18-26 of Column 8). Bridge has the ability to keep track of the memory locations via the checkpoint value. (43-53 of Column 10)

h. Regarding the limitation of "generating a plurality of backward moves from the write commands, wherein the backward moves correspond to reverse changes that reverse the effect of the plurality of write commands," Bridge discloses a system wherein a checkpoint value is determined by calculating the maximum number of records that should be processed after the failure, the number of records denotes the desired number of data blocks that will be redone during the recovery. (Lines 1-6 of Column 6).

13. Regarding claim 23, Koseki discloses metadata that are data about data that are stored in prescribed portions of memory. The metadata is logged so as to know which data is the updated valid data. (Lines 20-32 of Column 7, Lines 41-47 of Column 9).

14. Regarding claim 34, Koseki discloses metadata that can be stored in circular buffer. (Lines 47-52 of Column 7).

15. Regarding claim 35, Koseki discloses a system that can repair a file system by log records with the metadata that discloses the updates to the system. (Lines 62-67 of Column 7).

16. Regarding claim 36, Koseki discloses a system that can repair a file system by log records with the metadata that discloses the updates to the system. (Lines 62-67 of Column 7).

17. Regarding claim 37, Koseki discloses a system wherein the log can be come filled and updates and be applied. (Lines 47-60 of Column 7).

18. Regarding claim 38, Koseki discloses a system wherein the index number can be set to zero. (Lines 3-10 of Column 9).

19. Regarding claim 39, Koseki discloses a system wherein the index number is larger than the memory can handle. (Lines 3-10 of Column 9).

20. Regarding claim 40, Koseki discloses a system that can handle multiple concurrent transactions to update metadata. (Lines 32-38 of Column 12).

21. Regarding claim 41, Koseki discloses a system that can generate a plurality of metadata objects. (Lines 21-25 of Column 12).

22. Regarding claim 42, Koseki discloses a system can update a plurality of log buffers. (Lines 21-25 of Column 12).

23. Regarding claim 43:

i. Regarding the limitation of "recording a plurality of write commands a forward journal," Koseki discloses a system with the ability of storing a plurality of metadata objects describing files. (Lines 14-16 of Column 5).

j. Regarding the limitation of "correlating the virtual recovery mapping object with the plurality of backward moves so the virtual recovery mapping object maps logical addresses to corresponding backward moves from the plurality backward moves," Koseki discloses a system with the ability of log buffer which stores the log records collected by the log collection unit and a log writing unit which transfers the log records from the log buffer to the log volume. (Lines 38-41 of Column 5).

k. Regarding the limitation of "generating a virtual recovery mapping object from the plurality of write commands, wherein the virtual recovery mapping object maps logical addresses into physical storage addresses," Koseki discloses a system with the ability of a log volume which is created to store log records describing updates made to the metadata. (Lines 17-19 of Column 5). Koseki does not disclose that the store log records map logical address to physical address. Bridge discloses a system with records

that are associated with checkpoint values. A check point value is changed when a particular records is written into memory location. (Lines 45-60 of Column 5). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the art of Bridge with the art of Koseki. One would have been motivated to combine the arts because Koseki discloses the use of a log records stored in log buffers that describe updates to the computers files. Koseki however fails to disclose that the log records store the addresses of a metadata within the log buffers. (Lines 18-26 of Column 8). Bridge has the ability to keep track of the memory locations via the checkpoint value. (43-53 of Column 10)

l. Regarding the limitation of "generating a plurality of backward moves from the write commands, wherein the backward moves correspond to reverse changes that reverse the effect of the plurality of write commands," Bridge discloses a system wherein a checkpoint value is determined by calculating the maximum number of records that should be processed after the failure, the number of records denotes the desired number of data blocks that will be redone during the recovery. (Lines 1-6 of Column 6).

24. Regarding claim 44, Koseki discloses metadata that are data about data that are stored in prescribed portions of memory. The metadata is logged so as to know which data is the updated valid data. (Lines 20-32 of Column 7, Lines 41-47 of Column 9).

25. Regarding claim 55, Koseki discloses metadata that can be stored in circular buffer. (Lines 47-52 of Column 7).

26. Regarding claim 56, Koseki discloses a system that can repair a file system by log records with the metadata that discloses the updates to the system. (Lines 62-67 of Column 7).

27. Regarding claim 57, Koseki discloses a system that can repair a file system by log records with the metadata that discloses the updates to the system. (Lines 62-67 of Column 7).

28. Regarding claim 58, Koseki discloses a system wherein the log can be come filled and updates and be applied. (Lines 47-60 of Column 7).

29. Regarding claim 59, Koseki discloses a system wherein the index number can be set to zero. (Lines 3-10 of Column 9).

30. Regarding claim 60, Koseki discloses a system wherein the index number is larger than the memory can handle. (Lines 3-10 of Column 9).

31. Regarding claim 61, Koseki discloses a system that can handle multiple concurrent transactions to update metadata. (Lines 32-38 of Column 12).

32. Regarding claim 62, Koseki discloses a system that can generate a plurality of metadata objects. (Lines 21-25 of Column 12).

33. Regarding claim 63, Koseki discloses a system can update a plurality of log buffers. (Lines 21-25 of Column 12).

Allowable Subject Matter

34. Claims 3-12, 24-33, and 45-54 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

35. The following is a statement of reasons for the indication of allowable subject matter: The prior art of record fail to teach writing commands to a mirror in the middle.

Response to Arguments

36. Applicant's arguments filed 04/05/05 have been fully considered but they are not persuasive.

37. Regarding claim 1-63:

m. Regarding the argument of the prior art of record not teaching "mapping logical addresses into physical storage address in the passage," the examiner contends that the applicant's arguments fail to comply with 37 CFR 1.111(b) because they amount to a general allegation that the claims define a patentable invention without specifically pointing out how the language of the claims patentably distinguishes them from the references. The examiner contends that Koseki does not disclose that the store log records map logical address to physical address. Bridge discloses a system with records that are associated with checkpoint values. A check point value is changed when a particular records is written into memory location. (Lines 45-60 of Column 5).

n. Regarding the argument of the prior art of record not teaching "backward moves that reverse the effects of... metadata volumes," the examiner contends that the applicant's arguments fail to comply with 37 CFR 1.111(b) because they amount to a general allegation that the claims define a patentable invention without specifically pointing out how the language of the claims patentably distinguishes them from the references. The examiner contends that Bridge discloses a system wherein a checkpoint value is determined by calculating the maximum number of records that should be processed after the failure, the number of records denotes the desired number of data blocks that will be redone during the recovery. (Lines 1-6 of Column 6).

o. Regarding the argument of the prior art of record not teaching "correlating... a virtual recovery mapping object with back ward moves," the examiner contends that the applicant's arguments fail to comply with 37 CFR 1.111(b) because they amount to a general allegation that the claims define a patentable invention without specifically pointing out how the language of the claims patentably distinguishes them from the references. The examiner contends that Koseki discloses a system with the ability of log buffer that stores the log records collected by the log collection unit and a log writing unit, which transfers the log records from, the log buffer to the log volume. (Lines 38-41 of Column 5).

Conclusion

38. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Tim Bonura.**

- The examiner can normally be reached on **Mon-Fri: 8:30-5:00**.
- The examiner can be reached at: **571-272-3654**.

39. If attempts to reach the examiner by telephone are unsuccessful, please contact the examiner's supervisor, **Rob Beausoliel.**

- The supervisor can be reached on **571-272-3645.**

40. The fax phone numbers for the organization where this application or proceeding is assigned are:

- **703-872-9306 for all patent related correspondence by FAX.**

41. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov/. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

42. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the **receptionist** whose telephone number is: **571-272-2100.**

43. Responses should be mailed to:

- **Commissioner of Patents and Trademarks**

  P.O. Box 1450

  Alexandria, VA 22313-1450

Tim Bonura
Examiner
Art Unit 2114

tmb
July 10, 2005

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PRIMARY EXAMINER